Hemitilapia oxyrhynchus.

D. XVI 10–11. A. III 9. Sq. 36 $\frac{3-4}{11}$. Lat. l. 22/15.

Depth of body $2\frac{1}{2}$ times in total length, length of head 3. Snout pointed, with concave profile, $1\frac{1}{2}$ to twice as long as the eye, the diameter of which is 4 to nearly 5 times in length of head; maxillary extending to between nostril and eye; 4 series of scales on the cheek; 12 gill-rakers on lower part of anterior arch. Last dorsal spine longest, $\frac{2}{5}$ length of head; longest dorsal rays nearly as long as head. Scales with very finely denticulate border.

Total length 180 millim.

Two specimens, in poor condition.

BIBLIOGRAPHICAL NOTICES.

Palæontologia Indica. Series XVI. Vol. I. Part 3. *Fauna of the Upper Cretaceous (Maëstrichtian) Beds of the Mari Hills.* By Fritz Noetling, Ph.D., Palæontologist, Geol. Surv. India. Folio. 79 pages: plates i.–xxiii. Calcutta: Geol. Survey Office. London: Kegan Paul & Co. 1897.

It is believed that this account of the species here described and figured has a special interest in throwing some light on the geographical distribution of the Upper Cretaceous fauna. The fossils of this formation collected in Baluchistán (77 in number) afford 66 determinable species, of which 42 are new, and 24 are identified with forms previously described. Of these last, there are seven which hitherto are only known to occur in Indian or Central-Asian beds, viz.:—

1. Carditа Beaumonti, *d'Arch. & Haime* (Sind); var. baluchistanensis, *Noetl.*
2. Cardita subcomplanata, *d'Arch. & Haime.* Sind.
3. Radiolites subdilatata, *Muschketoff.* In strata of Senonian age in Turkestan.
4. Corbula harpa, *d'Arch. & Haime.* Sind.
5. Ovula expansa, *d'Arch. & Haime.* Sind.
6. Volutilithes latisepta, *Stoliczka.* In the Ariyahir strata of Southern India.
7. Nautilus subfleuriausianus, *d'Arch. & Haime.* Sind.

There remain, therefore, 17 species, or 26 per cent. of the total number, which the Baluchistán Upper Cretaceous Beds have in common with the Cretaceous Beds of Europe; and it is these we have chiefly to consider in looking for information as to the age and correlation of the *Hemipneustes* beds (as they may be conveniently

styled). The following table indicates to some extent the geological distribution of these 17 species :—

1. Orbitolites macropora, *Defr.*	*
2. Orbitoides socialis, *Leym.*	*
3. Cyclolites regularis, *Leym.*	*
4. Pyrina ataxensis, *Cotteau*	*
5. Hemipneustes pyrenaicus, *Hébert*	*
6. Hemipneustes Leymeriei, *Hébert*	*
7. Ostrea acutirostris, *Nilsson*	*†
8. Ostrea pectinata, *Lamarck*	*†
9. Ostrea ungulata, *Schloth.*	*
10. Gryphæa vesicularis, *Lamarck*	*
11. Exogyra pyrenaica, *Leym.*	*
12. Spondylus santoniensis, *d'Orb.*	*†?
13. Vola quadricostata, *Sow.*	*
14. Pecten Dujardini, *Roemer*	*†
15. Trochus Lartetianus, *Leym.*	*
16. Nerita pontica, *d'Arch.*	*†?
17. Nautilus sublævigatus, *d'Orb.* (N. Labechi, *d'Arch. & Haime*)	*†?

The species marked * belong to the Aturian or Upper Senonian Series; and those marked † to the Emscherian or Lower Senonian Series also.

It is suggested by the author, with some reserve, that there is good evidence of the *Cardita Beaumonti* beds belonging to a higher position in the Cretaceous series than *Hemipneustes* beds; and he thinks that the above list unquestionably shows that the *Hemipneustes* beds of Baluchistán are of Senonian age, representing the upper part (or étage Aturien) of that formation, and most probably homotaxial with the étage Maëstrichtien of the French authors.

As to the relationship of the *Hemipneustes* beds to those of similar age in other parts of the world, Dr. Noetling finds it difficult to define. In Southern India only six species seem to be common to Baluchistán and Ariyahir in Southern India, namely Nos. 7, 8, 9, 10, and 13, together with *Volutilithes latisepta*, Stoliczka.

"The Upper Cretaceous beds of Asia Minor share only a few species with the *Hemipneustes* beds. The fauna of the Upper Cretaceous beds of the south-western corner of France bears a strong resemblance to that of the *Hemipneustes* beds of Baluchistán. Except such ubiquitous forms as *Vola quadricostata*, &c., the following species are common both to the Maëstrichtian of south-western France and the *Hemipneustes* beds of Baluchistán :—

Orbitolites macropora, *Defr.*
Orbitoides socialis, *Leym.*
Cyclolites regularis, *Leym.*
Pyrina ataxensis, *Cott.*
Hemipneustes pyrenaicus, *Héb.*
Hemipneustes Leymeriei, *Héb.*
Exogyra pyrenaica, *Leym.*
Trochus Lartetianus, *Leym.*
Nerita pontica, d'Arch.

"And probably also

Nautilus sublævigatus, *d'Arch.*

"It is certainly highly remarkable that, even if we exclude the first and last two species, as occurring elsewhere in similar strata, there are certainly six species which have hitherto only been ob-

served in the Upper Cretaceous beds of Southern France and the *Hemipneustes* beds of Baluchistán. This seems to point to similar physical conditions under which the Upper Cretaceous beds were deposited in South-western France and Baluchistán. Another most remarkable fact is that the *Hemipneustes* beds do not share a single specimen with the Upper Cretaceous beds of Palestine and North Africa. It may be doubtful whether strata of the age of the *Hemipneustes* beds are developed in Palestine; but they certainly occur in North Africa.

"These considerations lead us to the conclusion that the *Hemipneustes* beds are of Upper Senonian age, and most probably represent the étage Maëstrichtien. The fauna therein contained bears hardly any resemblance to the fauna of similar age in Southern India or Northern Africa. On the other hand, it exhibits the closest relationship to the fauna contained in beds of similar age of South-western France. The fauna of the *Hemipneustes* beds must therefore be considered as belonging to the European province of the later Cretaceous sea, and living probably in close proximity to its eastern shores. This sea was most probably divided by a comparatively narrow land-barrier from the sea in which the Upper Cretaceous fauna of Southern India lived—a view first expressed by Dr. Blanford, and not, as I erroneously stated, by the late Professor Neumayr."

The 23 quarto plates supply good illustrations of seventy-nine Upper Cretaceous Baluchistán species, fully described as 3 Rhizopods, 3 Corals, 16 Echinoderms, 26 Pelecypods, 24 Gasteropods, 6 Cephalopods, and 1 Crustacean. The several generic facies remind us of some of the Lower Cretaceous, as well as of many of the Upper Cretaceous, forms of Western Europe.

The author is conscientiously careful in terminology and nomenclature, and is very correct in orthography; yet the modern confusion in the names of the Ammonoidea has entangled him, as usual with less educated writers, and allowed him to let slip a false concord in the specific name of *Indoceras* at several pages.

Notes on the Morphology of the Pelecypoda. By Fritz Noetling, Ph.D., F.G.S. *Palæontologia Indica.* New Series. Vol. I. Part 2. 57 pages, 4 plates (ii. to v.), and 8 cuts. Folio. 1899. Calcutta: Geol. Survey Office. London: Kegan Paul & Co.

After dwelling on the insufficiency of the common method of describing the hinge-teeth of the Bivalved Molluscs (*Bivalvia*, Linné, *Acephala*, Cuvier, *Lamellibranchia*, Blainville, *Pelecypoda*, Goldfuss), which are here treated under the group-name given by Goldfuss, the author proceeds to illustrate and explain the well-based and philosophical system of terminology for these teeth as elaborated by Munier-Chalmas, Stefanescu, and Bernard, and founded on the development of the hinge. Although the homologies are as yet